

WHAT IS CLAIMED IS:

1. A high frequency switch circuit device, comprising:

a semiconductor substrate including a p-type substrate region;

a p-channel type FET provided in the p-type substrate region and functioning as a high frequency switching element including a source, a drain, a gate and an n-type well;

a voltage supply node connected to the n-type well for supplying a voltage to the n-type well; and

high frequency signal separation means provided between the n-type well and the voltage supply node for separating a high frequency component of a signal flowing between the n-type well and the voltage supply node.

2. The high frequency switch circuit device of claim 1, further comprising an insulative separation layer surrounding the n-type well and extending downward from a surface of the semiconductor substrate to a position deeper than the n-type well.

3. The high frequency switch circuit device of claim 1, wherein the semiconductor substrate is an SOI substrate obtained by providing the n-type well on an insulator layer.

4. The high frequency switch circuit device of claim 3, wherein the SOI substrate is a silicon substrate having a buried insulative layer made of silicon oxide.

5. The high frequency switch circuit device of claim

3, wherein the SOI substrate is obtained by epitaxially growing a silicon crystal layer on a sapphire substrate.

6. The high frequency switch circuit device of claim 1, further comprising another high frequency signal separation means provided between the n-type well and a ground so as to separate a high frequency component of a signal flowing between the n-type well and the ground.

7. The high frequency switch circuit device of claim 1, wherein the high frequency signal separation means is an inductor.

8. The high frequency switch circuit device of claim 7, wherein the inductor is a coil-shaped line formed on the semiconductor substrate.

9. The high frequency switch circuit device of claim 1, wherein the high frequency signal separation means is a resistor.

10. The high frequency switch circuit device of claim 9, wherein the resistor is a polysilicon film formed on the semiconductor substrate.

11. The high frequency switch circuit device of claim 1, wherein the high frequency signal separation means is a distribution constant line having a line length that is an odd number multiple of  $1/4$  of a wavelength of a signal passing therethrough.

12. The high frequency switch circuit device of claim 11, wherein the distribution constant line is a line formed

on the semiconductor substrate.

13. A high frequency switch circuit device, comprising:

a semiconductor substrate including a p-type substrate region;

an n-channel type FET provided in the p-type substrate region and functioning as a high frequency switching element including a source, a drain, a gate and a p-type well;

a barrier layer provided between the p-type substrate region and the p-type well and serving as a barrier against a flow of a high frequency signal between the p-type substrate region and the p-type well; and

high frequency signal separation means provided between the p-type well and a ground for separating a high frequency component of a signal flowing between the p-type well and the ground.

14. The high frequency switch circuit device of claim 13, wherein:

the barrier layer is an n-type well provided between the p-type substrate region and the p-type well, the high frequency switch circuit device further comprising:

a voltage supply node connected to the n-type well for supplying a voltage to the n-type well; and

another high frequency signal separation means provided between the n-type well and the voltage supply node

so as to separate a high frequency component of a signal flowing between the n-type well and the voltage supply node.

15. The high frequency switch circuit device of claim 13, further comprising an insulative separation layer surrounding the p-type well and extending downward from a surface of the semiconductor substrate to a position deeper than the p-type well.

16. The high frequency switch circuit device of claim 13, wherein the semiconductor substrate is an SOI substrate obtained by providing the p-type well on an insulator layer.

17. The high frequency switch circuit device of claim 16, wherein the SOI substrate is a silicon substrate having a buried insulative layer made of silicon oxide.

18. The high frequency switch circuit device of claim 16, wherein the SOI substrate is obtained by epitaxially growing a silicon crystal layer on a sapphire substrate.

19. The high frequency switch circuit device of claim 13, further comprising another high frequency signal separation means provided between the p-type well and a ground so as to separate a high frequency component of a signal flowing between the p-type well and the ground.

20. The high frequency switch circuit device of claim 13, wherein the high frequency signal separation means is an inductor.

21. The high frequency switch circuit device of claim 20, wherein the inductor is a coil-shaped line formed on the

semiconductor substrate.

22. The high frequency switch circuit device of claim 13, wherein the high frequency signal separation means is a resistor.

5 23. The high frequency switch circuit device of claim 22, wherein the resistor is a polysilicon film formed on the semiconductor substrate.

10 24. The high frequency switch circuit device of claim 13, wherein the high frequency signal separation means is a distribution constant line having a line length that is an odd number multiple of  $1/4$  of a wavelength of a signal passing therethrough.

15 25. The high frequency switch circuit device of claim 24, wherein the distribution constant line is a line formed on the semiconductor substrate.